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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/035,617    03/05/98    TOKIMOTO

T    7761-009

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WM01/0212

EXAMINER

NELSON, A

ART UNIT

PAPER NUMBER

2675

DATE MAILED:

02/12/01

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# 'Office Action Summary

Application No.  
09/035,617

Applicant(s)  
Tokimoto et al.

Examiner  
Alecia Nelson

Group Art Unit  
2675



☒ Responsive to communication(s) filed on Nov 21, 2000

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire three month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claims

☒ Claim(s) 1-22 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

☐ Claim(s) \_\_\_\_\_ is/are allowed.

☒ Claim(s) 1-22 is/are rejected.

☐ Claim(s) \_\_\_\_\_ is/are objected to.

☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been  
☐ received.

☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_.

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

Art Unit: 2675

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

2. **Claims 1-22**, are rejected under 35 U.S.C. 103(a) as being unpatentable over Repperger et al. (U.S. Registration No. H703) in view of Repperger et al. (U.S. Patent No. 4,632,341).

With reference to **claims 1, 2, 4, 6-11, 13, 15-18, 21, and 22**, Repperger et al. teaches an input device for providing information with a data processing system (318), comprising a means for containing fluid medium (312), and a means for communicating (314, 316) the fluid medium

Art Unit: 2675

going out from or coming into the containing means (312). There is taught a means for applying pressure to the fluid medium responsive to direct or indirect inputs from an operator so as to change volume of the fluid medium contained in the containing means, thereby the fluid medium is passed through the communication means (see column 4, lines 40-49). There is also taught a means for generating control information responsive to operation of the pressure applying means by the operator, the generated control information being input to the data processing system (318) (see column 4, lines 22-30). Further, there is taught a means for generating feedback information responsive to the control information input from the control information generating means (see column 4, lines 9-21). With reference to **claim 12**, Repperger et al. further teaches that a two-axis control stick impedance determination may be achieved by duplicating the FIG. 3 apparatus for a second axis, an axis which can be perpendicular to the plane of the FIG. 3 drawing (see column 6, lines 25-32). With further reference to **claim 22**, Repperger et al. also teaches as an object of the disclosed invention is to provide a joystick controller which may be used in aircraft, video game, or other utilization environments (see column 2, lines 15-18).

Repperger et al. fails to specifically teach the usage of a restricting means which restricts the flow of the fluid medium passing through the communicating means in response to the feedback control information fed by the feedback information generation means. Repperger et al., does however teach that signals from the feedback transfer function block, i.e., the microprocessor (318), are converted into the mechanical forces receivable at the control stick (300) by way of a pair of electrical current to fluid pressure transducer elements (314, 316) by

Art Unit: 2675

which pressures in the cylinder chambers are made proportional to the electrical current flows (338, 340) originating in the transfer function block (318) (see column 4, lines 22-36).

Repperger et al. ('317) teaches a means for restricting flow (325) of the fluid medium passing through the communicating means (see column 7, lines 55-62). The valves (316, 318) are coupled by a pair of pressure fluid conduction paths (320) and (322) to opposite ends of the cylinder (309). The current versus pressure transducer valves (316) and (318) received pressurized fluid from a source thereof by way of conduit (325) and convey this fluid in varying pressure form to the piston pressure chambers (312) and (314) on opposing sides of the piston (310). The complementary nature of the two buffer output signals causes the fluid pressures in the paths (320) and (322) to also be complementary in nature (see column 7, lines 41-62). Further, it is taught that a force proportional to the sensed G field at (334) will be applied by the mechanical connecting rod (306) to the control stick (300) (see column 7, lines 63-66).

It is not specifically taught by Repperger et al. nor Repperger et al. ('317) that the fluid medium is inclosed in a hermetically sealed manner. With further reference to **claims 7, 16, and 17**, it is not specifically taught that the chamber comprises a shell with an elastic membrane. However, it would seem obvious that the fluid medium is contained, and could be containable in a hermetically sealed manner or comprised of a shell.

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention for the current-pressure transducer to receive pressurized fluid from a source thereof

Art Unit: 2675

by way of the restive means to thereby provide the user with the correct feedback "feel" at the control stick when operating the device.

With reference to **claims 3, 5, and 14**, Repperger et al. teaches everything that is required as explained above with reference to **claims 1, and 11**, however fails to specifically teach that restricting means comprises a voltage driven actuator, arranged in the conduit, which comprises a set of electrodes for applying a regulating voltage.

Repperger et al. ('317) teaches the usage of buffer circuits (444) and driving circuits (446). The driver circuits are presumed to be incorporated into the transducers (316, 318) (see column 9, lines 16-21). The potentiometers (402, 404) serve to adjust the gain or calibration of the currents flowing in the base electrodes of the transistors (426, 428) to thereby regulate the current in the collector electrodes to a range that is compatible with the windings of the transducer valves (316, 318) (see column 9, lines 36-41).

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to include a voltage driven actuator as taught by Repperger et al. ('317) to the system which is taught by Repperger et al. to thereby allow the restricting means to process the received voltages in order to adjust the fluid based on the movement of the control stick and thereby causing the appropriate feedback to be received by the user.

With reference to **claims 19 and 20**, Repperger et al. teaches all that is required as explained above with reference to **claim 11**, however fail to specifically teach that the control data

Art Unit: 2675

generation means is capable of monitoring the pressure within the chamber, or a means for returning the control stick to an initial volume where there is no movement being applied thereto.

Repperger et al. ('317) teaches that by using a compressed gas as the fluid supplied by the conduit (325) or alternately, may be achieved by allowing a liquid fluid used in the chambers (312) and (314) to be returned through the transducer valves (316) and (318) to a low-pressure sump, upon attainment of predetermined pressures in the chambers (312) and (314) and in response to the application of pilot forces on the connection rod (306) (see column 8, lines 51-61). This thereby teaches that the control data generation means is capable of monitoring the pressure within the chamber.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to allow the control data generation means to be capable of monitoring the pressure within the chamber and for the control stick to return to a initial volume to thereby provide a negative biomechanical feedthrough force which would make it easier for the user to return the control stick to the neutral position.

### *Response to Arguments*

3. Applicant's arguments with respect to *claims 1-22* ave been considered but are moot in view of the new ground(s) of rejection.


Art Unit: 2675

***Conclusion***

4. Any response to this action should be mailed to: Commissioner of Patents and Trademarks Washington, D.C. 20231; or faxed to (703)309-9051, (for formal communications intended for entry) or: (703)308-6606 (for informal or draft communications, please label "PROPOSED or DRAFT). Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive Arlington, VA., Sixth floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alecia D. Nelson whose telephone number is (703)305-0143.

If attempts to reach the above examiner by telephone are unsuccessful, the examiner's supervisor, Steve Saras, can be reached at (703)305-9720.

  
**STEVEN SARAS**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2600**

adn/ADN  
February 7, 2001